



Progress Report

April 1990

A Cooperative Project Supported by:
Wildlife Habitat Canada and the
N. B. Dept. of Natural Resources and Energy

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WETLANDS AND COASTAL HABITAT
PROGRAM

91-05130/

PROGRESS REPORT

APRIL 1990

Wetlands and Coastal Habitat

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The Wetlands and Coastal Habitat Program is entering its third year. Since its inception, significant progress has been made towards the program goals of Acquisition, Stewardship, Public Education, Wetlands Management and Wetlands Policy Reform.

The Wetlands and Coastal Habitat Program has been able to expand through the advent of the Eastern Habitat Joint Venture and through other pending agreements with the State of New York and the Quebec-Labrador Foundation.

Growth and success are expected to continue to meet the goals of each of the Ducks Unlimited agreement on wetland enhancement and management, the wildlife habitat Canada agreement on wetland and coastal habitat conservation, and the Eastern Habitat Joint Venture five year plan for New Brunswick.

2.0 ACQUISITION ACHIEVEMENTS AND GOALS

To date, four acquisition projects have been initiated under the Eastern Habitat Joint Venture of the North American Waterfowl Management Plan. These are Grand Lake Meadows II, Grassy Island, Hog Island and Saint Martin's Marsh. In addition, one non-EHJV acquisition, Hall's Creek Marsh, was attempted. Grassy Island (120 acres) and the James Brydges property of the Grand Lake Meadows II (500 acres) project have been successfully acquired with the assistance of Ducks Unlimited Canada (DUC). DUC was able to decrease the duration of the Acquisition process on these properties. Currently DUC holds title. The Lands will be turned over to the Crown in 1990. An option to purchase has been obtained for Hog Island. Acquisition of this property will proceed once clear title has been confirmed.

The Hall's Creek project has been stalled as two of six landowners are unwilling to sell their properties. Landowners currently hope to realize a profit from their investment properties and thus are unreceptive to conservation initiatives.

In the past the Hall's Creek watershed has been subject to intensive industrial, urban and commercial development. The New Brunswick Clean Environment Act of 1987, administered by the Provincial Department of Municipal Affairs and Environment should prevent future development of this wetland. Future meetings will be

held with landowners to advise them of the new provincial law and how this law may impede their development plans. Until public attitude along the watershed is changed this project will be stalled.

The State of New York has expressed a direct interest in New Brunswick's acquisition program. Recently, \$100,000 was approved by the State for acquisition in the Grand Lake Meadows.

A subsequent proposal to acquire White Birch Marsh has been submitted to New York.

This year proposals will be developed for Castailia Marsh on Grand Manan (a 120 acre saltmarsh) and the entire 3000 ha Grand Lake Meadows.

3.0 STEWARDSHIP ACHIEVEMENTS AND GOALS

3.1 GENERAL

Significant advances have been made towards stewardship goals. Several corporate stewardship agreements have been signed, a land owner information package has been compiled and is in the final stages of production, and a pilot private stewardship project is planned for the coming fall.

Under the EHJV five year plan stewardship goals have been expanded beyond the existing goals of the Wetlands and Coastal Habitat Program. To meet these goals, New Brunswick has made a submission to WHC, under separate cover, for a 6 month stewardship coordinator. This coordinator will facilitate implementation of the private stewardship programs required to meet EHJV goals.

A third activity in stewardship has been interaction with the Quebec-Labrador Foundation (QLF). The QLF owns some property on Tabusintac lagoon, a major saltmarsh complex on New Brunswick's north shore. This Lagoon has long been recognized a one of the premier spots for migratory waterfowl in New Brunswick. As well as waterfowl, Tabusintac is an important area for herons, terns, ospreys and shorebirds including the endangered piping plover. A meeting is planned with QLF for June. The goal will be the development of a Tabusintac project to combine stewardship and acquisition to assure securement and allow management of this important wetland.

3.2 CORPORATE STEWARDSHIP IN NEW BRUNSWICK

3.2.1 SAINT'S REST MARSH

In December 1989, the Wetlands and Coastal Habitat Program was invited to present a Corporate Stewardship proposal to J. D. Irving Ltd. aimed at the development of Saint's Rest Marsh for interpretation and public education (Appendix A). The Saint's Rest Marsh is a high profile saltmarsh located along the Bay of Fundy, on the Western outskirts of the City of Saint John. It provides important habitat for a variety of staging and breeding waterfowl. Associated beaches and mudflats attract significant numbers of shorebirds and adjacent upland provides food and cover for a diversity of migratory songbirds. The marsh is also a foraging area for the New Brunswick's only breeding pair of peregrine falcons.

This proposal was well received by the corporation. J. D. Irving has subsequently contracted architects to develop a formal plan for the area. Details of this corporate stewardship development will be released when the corporation approves the consultant's plan.

3.2.2 DALY POINT RESERVE

On March 14th, 1990 the Wetlands and Coastal Habitat Program met with Brunswick Mining and Smelting Corporation Ltd (BMS). to discuss the future of the Corporate Stewardship Agreement and the

Daly Point Reserve. The company has retained a high interest in maintaining the Daly Point Reserve and requested that our program prepare a plan for Phase 2 of the continued interpretive development of the saltmarshes of the Bathurst Harbour (Appendix C). The Daly Point Reserve Management/Advisory Committee formed in 1989 to direct activities and development at this site will oversee expansion of this corporate stewardship project.

3.3 PRIVATE STEWARDSHIP IN NEW BRUNSWICK

In order to launch a Private Stewardship Program for Wetlands in New Brunswick, it was proposed that a Pilot Project on a community approach to the volunteer stewardship of wetlands be developed and implemented in the Acadian Peninsula and referred to as "Wetlands Watch Areas" (Appendix D).

The basis for such a proposal is that communities as a whole can work together effectively for the purpose of wetland habitat protection in association with our program and enforcement personnel. "Wetland Watch Communities" can record and report activities that should not occur in Wetlands and Coastal Habitat, and may conduct clean-ups, develop habitat enhancement projects or educational material in association with the Wetlands and Coastal Habitat Program.

4.0 PUBLIC EDUCATION

4.1 ENFORCEMENT STAFF

Slide presentations have been prepared and presented to Department Enforcement personnel illustrating negative impacts on wetlands and coastal habitat. These presentations highlighted existing legislation that regulates activities on wetland and coastal habitat and also noted where there is no such legislation. The need for heightened public awareness through education (including the possible cooperative production of public service announcement videos), increased endorsement and the need for the development of a Wetlands and Coastal Zone Act is stressed.

4.2 PUBLIC

Slide programs illustrating the values and functions of wetlands and concept of Stewardship have been developed and will be presented to school and community service groups beginning this spring.

4.3 LANDOWNER'S WETLANDS PACKAGE

Existing information for a landowner's Wetlands Package has been collated and a cover jacket has been designed (Appendix E). The Wetlands and Coastal Habitat Program will be producing a program brochure in 1990 that will be included within the landowner's package.

5.0 WETLAND PRIORIZATION

To date, forty wetlands within New Brunswick have been recommended for acquisition. Wetlands of provincial significance were identified through consultation with Resource personnel and with the use of the new Brunswick Wetlands inventory. The inventory provides a wildlife value for each wetland based on size, permanence of standing water and vegetation communities.

Initial efforts to prioritize wetlands in New Brunswick have succeeded in identifying significant areas within the province. These areas have become stewardship priorities, however, a further assessment is required in determining which sites are consistent with the goals of the Wetlands and Coastal Habitat Program. Accordingly, objective criteria are being developed to rank priority wetlands. Wetlands will be evaluated on the basis of biological, hydrological and utilization data.

5.1 BIOLOGICAL

Biological assessments will largely be in the context of a wetlands importance to waterfowl. Table 1 lists those wetland components to be measured at each site. All have been identified as discriminating variables in the selection of wetland habitat by waterfowl.

5.2 HYDROLOGICAL

Hydrologic evaluations will include an assessment of 1) Hydrologic support function, 2) shoreline protection, 3) storage for storm and flood water, 4) natural groundwater recharge and 5) water purification through natural water filtration. Within New Brunswick methods have been developed to measure all 5 parameters (Monenco 1983). Evaluations of priority wetlands in terms of hydrologic importance will rely largely on these methods.

5.3 UTILIZATION

Wetland use will be determined on the basis of 1) resource production, 2) non-commercial recreation and 3) social aesthetic properties. Methods specific to the province of New Brunswick have been developed by Monenco (1983) and will be adopted here.

Evaluations of all priority wetlands will be complete by the fall of 1991. At that time sites will be reprioritized in terms of their importance within the acquisition program.

6.0 WETLAND PRODUCTIVITY STUDY

6.1 GENERAL

During 1989, the wetland productivity study focused on the collection of habitat information on four impoundments along the

floodplain region of the St. John River. These four sites are Boyds Marsh near Gagetown, two impoundments on Foshay Lake near Jemseg, and Mount Marsh on Gagetown Island.

Boyds Marsh is dominated by a mixture of buckbean and horsetail with some pickerel weed and flooded shrub. Foshay I, the larger impoundment on Foshay Lake is dominated by sedges and rushes. Foshay II is dominated by buckbean. Mount Marsh was selected as an example of a new impoundment after first year flooding. The impoundment was flooded in the spring of 1990 and is presently dominated by ericaceous shrub (Table 1).

The same productivity sampling regime (previously described in earlier reports) was followed on the flood plain sites as on the inland sites in order to facilitate comparison between these two types of wetlands. Results of this first year baseline data on the floodplain wetlands indicates that productivity of these sites is higher than on inland impoundments.

6.2 1989 RESULTS

Water quality:

Analysis of variance showed no significant differences in nutrient levels among different vegetation types in any particular floodplain wetland (significance value = 0.05).

Mount Marsh had significantly higher levels of carbon and nitrogen ($p = 0.001$) than the other floodplain impoundments (Table 2). Phosphorus levels were highest in Foshay II ($p = 0.034$).

Phosphorus and nitrogen levels were almost twice as high at floodplain sites as compared to inland sites, indicating that nutrients are more abundant in the floodplain wetlands.

Invertebrate Abundance:

All of the floodplain sites had a higher invertebrate abundance than the inland sites (Table 3). However, invertebrate biomass is not significantly higher in the floodplain wetlands than in the inland sites. One possible explanation for this difference is that on floodplain wetlands Isopoda are the single most abundant taxa and contribute most to the available biomass in these areas. Inland wetlands show a higher abundance of taxa from the Orders Odonata, Gastropoda and Hemiptera. Although these Orders are not usually dominant in inland impoundments, due to their large size, individuals from these taxa can contribute a significant amount to the biomass of these inland wetlands.

Within the floodplain wetlands Foshay II had the highest numbers of aquatic invertebrates (Table 4) where Isopoda accounted for

60-80% of the invertebrate mass. The highest biomass/sample occurred in Mount Marsh, where Isopoda only accounted for 38% of the mass. However, biomass was significantly higher ($p = 0.002$) in Foshay II and Mount Marsh than in the other two floodplain sites. In all of the floodplain wetlands open water sites exhibited lower densities and biomass of invertebrates than the other cover types throughout most of the sampling period.

Litter Decomposition:

There was no significant difference in litter decomposition among the floodplain sites over the summer (Table 5). However, litter decomposition rates were significantly greater ($p = 0.015$) at floodplain impoundments as compared to inland impoundments.

Waterfowl Use:

In 1987 brood surveys on the inland wetlands were conducted by helicopter whereas 1988 and 1989 surveys were conducted from the ground, thus 1988 and 1989 surveys are more comparable.

Surveys for 1988 and 1989 indicate that fewer broods are produced on the inland study sites than on the floodplain sites (Table 6). In the inland impoundments ring-necked ducks were the

most abundant broods (60% of 1987 broods, 66% of 1988 broods). In the floodplain sites the most abundant broods were blue-winged teal (45% of 1989 broods) and black ducks (25% of 1989 broods).

6.3 SUMMARY

Although the actual levels of nutrients in the floodplain study sites varied, the underlying trend remained the same, suggesting that water on inland sites is not as fertile as on floodplain impoundments and may therefore produce fewer invertebrates for waterfowl as compared with floodplain sites.

Although invertebrate biomass shows little difference between the two types of wetlands, both invertebrate abundance and brood production is higher on floodplain sites than on inland sites. It is possible that a stronger correlation will be found between biomass and brood use when data is re-analyzed with the removal of taxa with low abundance but contributing a high weight to the samples.

6.4 Wetland Productivity Study Goals: 1990-1991

- 1) In 1990 two of the inland study sites (Negro Brook and Lake Brook) will be reflooded and monitoring will begin to assess the effects of drawdown on the productivity of these two impoundments.

- 2) A second years baseline data will be collected on the floodplain study sites and a management plan for these wetlands will be developed in October, 1990.
- 3) A level-ditching study will be developed and initiated on Grand Lake Meadows to assess the effectiveness of this technique in enhancing the productivity of wetlands.

TABLE 1: Sampling sites in Floodplain Wetlands

Area	Cover Type	No. of Sites
Boyds Marsh	Buckbean (<u>Menyanthes trifoliata</u>)	5
	Pickerelweed (<u>Pontederia cordata</u>)	5
	Shrub (<u>Myrica</u> sp.)	4
	Open water	5
Foshay Lake (Impoundment I)	Sedge (<u>Carex</u> sp.)	5
	Rush (<u>Scirpus</u> sp.)	4
	Pickerelweed (<u>Pontederia cordata</u>)	5
	Open water	5
Foshay Lake (Impoundment II)	Sedge-Sweetflag Mix	5
	(<u>Carex</u> sp., <u>Acorus</u> sp.)	
	Buckbean (<u>Menyanthes trifoliata</u>)	5
	Open water	5
Mount Marsh	Mixture of sedges (<u>Carex</u> sp.),	7
	Willow (<u>Salix</u> sp.) and	
	Alder (<u>Alnus</u> sp.)	
	Open water	5

TABLE 2: Water Quality of Floodplain sites compared to
Water Quality of Inland sites.

Area	pH	Nitrogen (mg./l)	Phosphorus (mg./l)	Carbon (mg./l)
Floodplain:				
Boyds	6.6	1.089	0.105	14.679
Foshay I	7.0	1.096	0.278	16.094
Foshay II	6.7	1.131	0.095	16.805
Mount Marsh	6.5	1.570	0.067	34.195
Inland:				
Avondale	7.5	0.720	0.031	16.182
Lake Brook	7.0	0.915	0.030	13.359
Negro Brook	6.5	0.870	0.035	15.229
Pocowagamis	7.5	0.827	0.027	14.011

TABLE 3: Abundance of Invertebrates in Floodplain Impoundments compared to Inland Impoundments.

Area	Mean no. per sample	Mean dry wt. per sample (mg.)	Dominant taxa
Floodplain:			
Boyds	119.0	143.79	Isopoda
Foshay I	77.0	121.17	Isopoda
Foshay II	135.8	215.43	Isopoda
Mount Marsh	92.5	271.56	Isopoda
Inland:			
Avondale	48.6	152.92	Amphipoda, Lymnaeidae
Lake Brook	53.6	101.66	Amphipoda, Lymnaeidae
Pocowagamis	62.5	225.17	Amphipoda, Lymnaeidae
Negro Brook	47.7	128.32	Chironomidae, Lymnaeidae

TABLE 4: Density of Invertebrates/Sample in Relation to Habitat Types in Floodplain Impoundments (mean dry weights - mg.)

Area	Habitat	June	July	August	$\bar{X}$
Boyds	Buckbean	182.67	245.29	200.63	209.53
	Pickerelweed	148.75	147.78	151.96	149.50
	Shrub	105.97	118.00	107.21	110.39
	Open Water	100.63	120.72	95.92	105.75
Foshay I	Sedge	240.38	130.11	190.91	187.13
	Rush	142.78	145.15	140.38	142.77
	Pickerelweed	107.99	-	143.19	125.59
	Open Water	34.91	13.56	39.17	29.21
Foshay II	Sweetflag	204.72	306.79	228.72	246.74
	Buckbean	406.53	215.38	279.38	300.43
	Open Water	38.02	174.23	82.18	99.14
Mount Marsh	Vegetated	303.86	-	330.70	317.28
	Open Water	180.47	-	271.26	225.85

TABLE 5: Mean Decomposition Rate of Litter and Decomposition Coefficients in Floodplain Sites vs. Inland Sites

Area	Rate of Decomposition (g/week)	Coefficient of Decomposition
Floodplain:		
Boyds	0.76	0.071
Foshay I	0.65	0.043
Foshay II	0.69	0.067
Mount Marsh	0.70	0.068
Inland:		
Avondale	0.48	0.019
Lake Brook	0.42	0.017
Pocowaganis	0.58	0.020
Negro Brook	0.39	0.017

TABLE 6: Broods observed in Floodplain vs. Inland sites

	Black Duck	Mallard	Pintails	Wigeon	Ring-necked Ducks	Wood Ducks	BWT	OWT	Total
<u>Inland - 1987</u>									
Lake Brook	1	1	-	-	2	-	2	-	6
Avondale	-	-	-	-	4	-	1	-	5
Pocowagamis	2	-	-	-	5	-	1	-	8
Negro Brook	-	-	-	-	1	-	-	-	1
Total	3	1	-	-	12	-	4	-	20
<u>Inland - 1988</u>									
Lake Brook	-	1	-	-	1	-	-	-	2
Avondale	-	-	-	-	2	-	-	-	2
Pocowagamis	1	-	-	-	2	-	1	-	4
Negro Brook	-	-	-	-	1	-	-	-	1
Total	1	1	-	-	6	-	1	-	9
<u>Floodplain - 1989</u>									
Boyd's	2	-	-	-	-	-	3	1	6
Poshay I	2	-	-	-	-	-	2	-	4
Poshay II	1	-	1	4	-	-	1	-	7
Gagetown Is.	1	-	-	-	-	-	4	-	5
Total	6	-	1	4	-	-	10	1	22

7.0 POLICY REFORM

7.1 GENERAL GOALS AND ACHIEVEMENTS

Wetlands and Coastal Habitat program staff continue to review land use proposals for Crown land which have the potential to impact wetland habitats. A presentation has been given to an interdepartmental committee on land use to acquaint this group (senior level government) with the goals of the wetlands and coastal habitat program. The idea of a Wetlands Protection Act and wetlands designation were also discussed. Members of this group were receptive and keenly interested in these new ideas and developments. As a result of this meeting, a presentation is planned for the Cabinet Committee on Policy and Priorities.

The contract for Taxation/Policy Review will be tendered this spring and a discussion document prepared for circulation by September 1990.

8.0

BUDGETARY EXPENDITURES AND REQUIREMENTS

In 1989-90, New Brunswick's expenditures on wetlands and coastal habitat management totalled \$224,795.41 not including the program coordinator's salary and expenses and EHJV acquisitions of this amount \$71,016.63 (31.6% of program total) is required from WHC to meet commitments under the cooperative agreement. This amount is less than that requested in the October 1989 progress report because of the 6-month period without a Land acquisition coordinator and the indefinite stalling of the Hall's Creek Project.

Table 9.1 WHC Expenditures 1989-90

	Requested October 1989	Actual
Stewardship Coordinator	35	32
Acquisition-Coordinator	20	-
Project Biologist	35	30
Acquisition	35	
Public Awareness	13	5
Taxation/Policy Review	-	-
Management System Development	<u>10</u>	<u>4</u>
	<u>148</u>	<u>71</u>

9.2 Future Budgetary Expenditures and Requirements

	March 1991	March 1992	March 1993
Stewardship Coordinator (non EHJV)	35	35	35
Acquisition Coordinator	20	20	20
Project Biologist	35	35	35
Acquisition	60	60	60
Public Awareness	13	13	13
Taxation/Policy Review	30		
Management System Development	<u>10</u>	<u>10</u>	<u>—</u>
	<u>203</u>	<u>173</u>	<u>163</u>

APPENDIX A

Wetlands and Coastal Habitat Program

Corporate Stewardship

Proposed to

J.D. Irving Limited

for

Saints' Rest Saltmarsh

Background

The New Brunswick Department of Natural Resources and Energy in cooperation with Wildlife Habitat Canada is in the process of seeking Corporate Stewardship agreements for Wetlands and Coastal habitat. Corporate Stewardship agreements involve the corporate landowners and DNRE cooperatively conserving significant pieces of wetlands and coastal habitat.

One such project was completed in 1989. In cooperation with Brunswick Mining & Smelting Ltd. (BMS), 100 acres of salt marsh was secured at Daly Point, Bathurst Harbour and subsequently developed the Daly Point Interpretive Trail which is currently being used by school groups and up to 150 individuals a day on weekends for waterfowl viewing and bird watching. Funding for the trails and boardwalks was provided by BMS, DNR&E provided manpower and technical expertise for site development and production of interpretive signs and a brochure.

The benefits to the corporation of participation in corporate stewardship programs are numerous. The obvious benefit is good public relations. Through simply agreeing to conserve habitat, the corporation increases its profile in a local community as a corporation concerned about environmental conservation. By actively promoting the idea of wetlands and

coastal habitat conservation through the development of a public education facility on site the Corporation is then able to ensure that its participation is recognized by the people who visit the site. Once developed such a site could be used in employee participation programs to further carry a message of environmental values.

Proposal

As part of this Corporate Stewardship initiative the Wetlands and Coastal Habitat Program of DNR&E seeks the participation of J.D. Irving Ltd. in a project to secure and develop a section of the Saints' Rest Marsh, located in Saint John, New Brunswick.

This marsh has long been recognized by local and provincial naturalists groups for its value to migratory birds. The marsh is also in a "high profile" location which lends itself well to the development of an interpretive trail and display.

Interpretive development would be linked with the existing Tourism Information Centre overlooking the marsh on Highway 1. A standing display explaining the ecology of Saints' Rest Marsh and its associated wildlife could be installed at the Tourism booth. A pathway and boardwalk are proposed from the booth to the marsh where an outlook platform and interpretive signs would be posted to aid visitors in the identification of common and the more unique species which inhabit Saints' Rest.

The Wetlands and Coastal Habitat Program staff will work with the corporation to provide technical expertise in the development of the standing display, trail system and brochure. The province will assume liability for public use of the facility. The corporation is asked to provide the land, agree to conserve the marsh and to fund on site development.

Benefits

1. Saints' Rest Marsh and associated wildlife resources is secured from development detrimental to the natural ecology of the area.
2. J.D. Irving Ltd. increases its public profile as a responsible corporate steward of wildlife habitat.
3. Public interest in and education of the value of wetlands is increased.
4. Saints' Rest Marsh may subsequently be promoted as a tourist attraction for the City of Saint John.
5. Saints' Rest Marsh would be a model for future private stewardship programs with DNR&E.

On-Site Facilities

1. Salt Marsh Ecology Display

- Illustrations to be done by an contracted artist.
- Display will outline the general ecological values of salt marshes and highlight those examples which can easily be viewed at Saints' Rest.
- to be housed at tourist booth overlooking Saints Rest Marsh (Reflex Portable System, -see diagram attached).
- text to be written by Wetlands and Coastal Habitat Program Staff.

2. Boardwalk and Trail

- wheelchair accessable
- Boardwalk will consist of approximately a 1,600 ft. loop through the saltmarsh with a handrail, 3 viewing areas and benches.
- each viewing area will be equipped with a deck to hold interpretive signage.

3. Interpretive Signs

- signs of wetland plant and animal species (artwork from standing display utilized), will be screened onto a plastic material.

3. -duplicates or triplicates will be made in the event of vandalism.

-text describing the species will be prepared by Wetlands and Coastal Habitat Program

4. Brochure on Saltmarsh Ecology

-pamphlet (in style of one prepared for Daly Point) prepared for Saints' Rest Marsh, to complement standing display.

-brochure will concentrate on wetland plant and animal species.

-text and draft mock-up to be prepared by Wetlands and Coastal Habitat Program staff.

-artwork from standing display utilized.

5. Spotting Scope

-a spotting scope with zoom lens and environmental housing and tripod will be installed outside the tourist booth, to allow visitors to view wetland wildlife.

6. Advertisement

-Two, 30 second P.S.A. (videos) highlighting the nature of the Corporate Stewardship agreement with J. D. Irving Ltd., the function and values of wetlands, with special reference to Saints' Rest saltmarsh.

-will inform public of wildlife viewing opportunities of this site.

APPROXIMATE COSTS FOR SAINTS' REST MARSH
INTERPRETIVE DEVELOPMENT

1. Salt Marsh Ecology Display

-to be housed in Tourist Booth overlooking
marsh

-Reflex Portable System (see diagram) \$6,300.

(includes carrying case and lights)

-Typesetting and conceptual design 3,300.

-Screen printing, including text (1 colour) 1,400.

-special effects (2 colours) 1,000.

Price quote from GDG, Moncton, does not include 12,000.
Provincial and Federal Taxes.

2. Trail leading from Tourist Booth Cost ?

-Wheelchair accessable, gradual decline down
to marsh edge.

Boardwalk

-1,600 ft. of boardwalk with viewing areas,
decks and benches (\$35.00 per foot x 1,600 feet).

-costs include materials and labour based on
funding availability from Challenge '90 or similiar
employment program. 56,000.

3. Interpretive Signs

-Signs to be screened onto plastic by

-graphic design company contracted for project

-Installed on viewing decks

-Cost includes materials and printing 10,000.

4. Brochure on Saltmarsh Ecology

- text and draft mock-up to be prepared by
Wetlands and Coastal Habitat Program Staff
- artwork produced for the standing display to
be utilized, graphic artist required for layout
- costs are dependent on number printed
- suggested number 20,000 20,000.

5. Road Signage

- aluminum road signage depicting a wetland
species representative of Saints' Rest Marsh
- to be designed by a graphic artist and screened
onto aluminum by sign-making
- company (5 x 300.00) = 1,500.

6. Spotting Scope, Zoom lens, tripod and
environmental housing

- to be permanently installed outside
Tourist Booth, overlooking marsh
- machinist contracted to construct housing 1,500.

7. Advertisement

- Production of a Public Service
Announcement on Saints' Rest Marsh 30,000.

7. -Cost based on outside media company
producing video; buying air time is
additional

-Script and shot list by Wetlands and
Coastal Habitat Program staff

TOTAL	\$131,000.00
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5

APPENDIX B

SUGGESTIONS FOR A PROPOSED
CO-OPERATIVE INTERPRETIVE
DEVELOPMENT AT
SAINT'S REST MARSH
AND TAYLOR ISLAND

Patrick Kehoe
Brenda Penak
Wetlands and Coastal Habitat Program
Department of Natural Resources and Energy

Fundy Coast Interpretive Development:

Suggestions for Mapping and Design

- The following is a list of suggestions or ideas for the proposed interpretive development at Saints' Rest Marsh and Taylors Island.
- These suggestions should provide some guidelines for project design.
- Due to the sensitive nature of wetland and coastal habitat it is highly recommended that any plans, design and eventual construction take into consideration environmental sensitivity.
- In addition, all designs and materials should blend well with the environment and be compatible with the atmosphere of this natural area.

Several areas should be highlighted in this development. These include the Saint's Rest Marsh, the Saint's Rest Beach, Taylor's Island, Lorneville Tidal Flats, and Manawagonish Island. Each of these areas holds unique and different habitat types and is worthy of interpretation for public education. Development should be planned in a phasal approach.

Phase I

A logical first phase would be the development of the saltmarsh trail and standing display to be housed at the tourist information booth located off Route 1. This approach would bring subsequent development on Taylor's Island, immediate profile to the travelling public. Boardwalks and standing display could be in place by late summer 1990. Plans for Phase 1 are presented in Appendix A.

Phase II (concurrent with Phase I)

Phase II will allow for the development of nature trails on Taylor's Island including the upgrading of the beach "road" to the island. Prior to this upgrading it must be ensured that the road can be used without impacting erosion on the beach or increasing the probability of a beach in this natural gravel bar, which isolates the marsh from the sea. This road should terminate in the old gravel pit located on Taylor's Island.

Phase II would also provide for the landscape and development of the old pit into a picnic area and parking lot (15 cars), and act as a hub for a trail system which would radiate to various scenic and ecologically significant points on the island. In the future an interpretive centre for public and educational groups could be erected at this site.

Phase II should also allow for the completion of three trails on Taylor's Island. These trails should radiate from the parking lot.

Taylor's Island

- picnic tables in gravel pit area with garbage bins nearby and toilet facilities
- location of a map of the trails and various interpretive facilities
- initially, the main trail system on Taylor's Island will follow an existing trail that runs through the center of the peninsula to the tip (Seely Point)
- this trail will be improved (gravel covered)
- the width of the trails will be kept as narrow as possible, only allowing for passage of equipment for trail construction or maintenance, or to permit establishment of a viewing or resting area
- signs for each of the artery trails will include the distance of each trail and/or the average amount of time to complete it

Suggested Artery Trails:

1. Shorebird Mudflats

- a trail should lead from the picnic area at the gravel pit to the edge of the mudflats on the southwestern part of Saints' Rest Marsh
- perhaps another spotting scope might be set up here on a raised viewing platform or blind, as well as interpretive signage depicting the most commonly seen shorebirds that feed on these flats

2. Seely Point Lookout

- this trail will lead from the main trail to the far tip of the peninsula
- a spotting scope and viewing platform is suggested
- interpretive signage will include a map of Manawagonish Island and illustrations of the birds found on the Island
- if feasible, in the summer months, boat trips around the Island would offer a unique opportunity to view colonial nesting birds.

3. Eastern Lookout

- another trail might radiate out to east side of the peninsula, looking out towards Sheldon Point
- areas east of Saints' Rest Beach as far as Sheldon Point contain geologically important marine shell materials (starfish and clam fossils, approximately 14,000 years old)
- further out in the harbour remains of walrus and whales have been located
- interpretive signage at the Eastern lookout may highlight features such as a herring weir

Phase II should be completed for the summer of 1991.

Should a preliminary assessment determine that vehicular traffic on the beach road would create a major detrimental impact, then alternate access to the island should be considered.

Phase III

Phase III will see the expansion and development of the trail system on Taylor's Island into a radial system of trails, each terminating at a major coastal habitat type (cobble beach, rocky shore, cliff face, tidal flat and sand beach). The radial system will allow the visitor access to the maximum diversity of habitat types, while minimizing back-tracking on the trail system.

Interpretive Signs

Interpretive signs will be developed as needed for the trails. These signs will highlight species of importance which may be found in the various habitat types. As well, general signs will be developed to describe the ecological characteristics of habitats through which the visitor travels. In keeping with the theme of wise stewardship and sustainable development the message of our role as both a resource consumer and conservationist must be the central theme behind all interpretive material.

Brochures should be produced on the entire development as well as the individual trails. In the future, bird, plant and mammal checklists should be provided to visitors.

APPENDIX C

Daly Point Reserve Management Plan

Phase 2

Weekend Interpretive Activities
at Daly Point Reserve
Spring/Summer 1990

In order to provide local people, community service groups and visitors to Bathurst with a better understanding of the habitats and wildlife of Daly Point Reserve, a number of weekend interpretive activities are planned throughout the spring/summer of 1990 to be advertised in the City's Calendar of Events. The list of activities and dates are as follows:

<u>Activity</u>	<u>Date/Time</u>
1. Celebrate Earth Day and return of Canada Geese to the Daly Point Reserve	Sunday April 22 beginning at 10:00 am
2. Spring Waterfowl Viewing Day	Sunday April 29 all day
3. Spring Waterfowl Viewing Day	Sunday May 6 all day
4. Morning Bird Watching and Coastal Walk	Sunday June 3 begins 9:30 am
5. Evening Nature Walk through the Daly Point Reserve	Sunday June 24 9:00 pm
6. Wild Flower Walk	Sunday July 22 Noon
7. Butterflies and other Insects of the Daly Point Reserve	Sunday July 29 Noon Fall viewing weekends

Note: Meet at the Daly Point Reserve Parking Lot on Carron Drive at designated time of the activity.

Contacts:

Brunswick Mining and Smelting	522-5100
Bathurst Office of the Department of Natural Resources and Energy	547-2075

APPENDIX D

Proposed "Wetlands Watch Areas" - A Pilot Project of the Wetlands and Coastal habitat Program to Initiate Private Stewardship in New Brunswick.

What is a "Wetland Watch Area"?

These are coastal or interior wetlands and associated habitat in New Brunswick, that are located on private lands and designated by the Wetlands and Coastal Habitat Program of the Department of Natural Resources and Energy (DNR&E) and are voluntarily protected and "WATCHED" by local landowners. Acquisition of all important wetlands are not always possible. By forming a "Wetlands Watch Area" in a community, this habitat can be protected through voluntary stewardship.

Landowners or whole communities, whose property borders on such designated habitat, have an opportunity to enter into an agreement with the Wetlands and Coastal Habitat Program to assist in Wetland Conservation by observing, recording and reporting any alteration, destruction or inappropriate activities that occur within a "Wetland Watch Area" to DNR&E enforcement staff. Landowners may also agree to participate in community wildlife management projects within the area such as: clean-ups, planting of shrubs for wildlife, nest box, nesting rafts or platform construction and installation. Landowners should encourage only wise use of the habitat and may agree to local services groups and schools utilizing the wetland for various educational activities.

Aim of "Wetland Watch Areas"

The development of "Wetland Watch Areas" is aimed at promoting the importance of wetland habitat in the Province of New Brunswick and encouraging private landowners to become responsible "stewards" or guardians of this important habitat.

How are "Wetland Watch Areas" selected?

Sites that might be protected by "Wetlands Watch Area" designation, are selected based on a number of factors including: important ecological or resource values, size, usage, land ownership, threats to the habitat and interest and support in the local community for the establishment of a Wetlands Watch Area.

Plans for the development of "Wetlands Watch Areas"

The Wetlands and Coastal Habitat Program is planning to launch a pilot "Wetlands Watch Area" in northeastern New Brunswick in the summer of 1990. The steps towards the development of such a program are outlined below.

Steps Towards the Development of a "Wetland Watch Area"

1. Finalize concept and logistics of "Wetlands Watch Areas".
2. Determine staffing requirements
3. Presentation of "Wetlands Watch Area" concept to DNR&E at senior enforcement staff meeting March 16, 1990. Attain Regional and District support for the concept before proceeding.
4. Complete "Wetlands Watch" landowner package including wetland inspection forms.
5. Identification and prioritization of appropriate "Wetland Watch Areas". A listing of the potential private stewardship areas already exists and will be consulted.

6. Assemble topographical, aerial and other available maps to determine roughly the boundary of the area of interest, before a site inspection.
7. Conduct seasonal inventories for waterfowl and other wetland wildlife. When available apply wetlands evaluation scheme or checklist to proposed "Wetland Watch Areas".
8. Initiate procedures to determine number of landowners involved, names and addresses.
9. Draft and send the first letter to landowners in the proposed "Wetlands Watch Area" in order to determine their interest and cooperation in such a project. Tentative date for a public meeting should be suggested and possible individual contact visit to each landowner.
10. Public meeting to be held in the community of a proposed "Wetland Watch Area", to discuss the concept and requirements of participants. Identification of inappropriate activities and threats to the habitat and explanation of how to complete form.
11. Formation of a smaller working committee for the "Wetlands Watch Area".
12. Development of a management plan/strategy and for the site with committee input.
13. Develop a symbol and road sign for Wetland Watch Areas in consultation with the Department of Transportation and Tourism.
14. Unveiling of the "Wetlands Watch Area" road sign.

15. Eventual development of interpretive materials specific to an individual site, to be available to local services groups and schools.
16. Develop landowner recognition materials (such as certificates of badges) in addition to the "Wetland Watch Area" sign developed for the community.
17. Distribute "Wetland Watch Areas" landowner packages in those areas where the concept develops.
18. After a "Wetlands Watch Area" has operated a predetermined amount of time, a questionnaire should be developed and mailed to participating landowners to assess the effectiveness of "Wetlands Watch Areas". An alternative would be to set up individual contact visits or interviews with each landowner.
19. Assess questionnaires or comments at public meeting in order to determine if the "Wetlands Watch Area" concept meets its objectives.
20. Determine if the "Wetlands Watch Area" concept might be applied to other areas.

APPENDIX E

Landowner's Wetlands Package

Renseignements sur les terres marécageuses à l'intention des propriétaires

ATTENTION:
BRENDA
PENAK



Natural
Resources
Energy



Ressources
naturelles
et Énergie

WILDLIFE HABITAT
CANADA
HABITAT FAUNIQUE



WETLANDS & COASTAL HABITAT
PROGRAM
PROGRAMMES DES
HABITATS MARÉCAGEUX
ET CÔTIERS